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Active virtual guides as an apparatus for augmented based telemanipulation system on the Internet

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Abstract:

In many current teleoperation architectures, remote tasks are indirectly performed by a human operator (HO) by means of a virtual environment consisting in a virtual representation of the remote site. In order to achieve virtual tasks, the interaction of the HO and the virtual representation is monitored. Monitoring is subsequently translated into a sequence of instructions sent to the remote robot for actual execution. This paper focuses on different strategies designed to allow a friendly operator interaction with the virtual representation in order to achieve remote tasks via the Internet. The use of active virtual **guides** to assist the HO in performing simple or complex tasks with enhanced performance (speed, precision, safety) is also discussed. Techniques such as virtual reality (VR), **augmented reality** (AR) combined with Internet-based programming facilities are investigated as proposed teleoperation system named ARITI (acronym for **Augmented Reality** for Telerobotic applications via Internet).

Index Terms:

[Internet](#) [augmented reality](#) [human factors](#) [telerobotics](#) [user interfaces](#) [ARITI](#) [Internet](#) [virtual guides](#) [augmented reality](#) [human operator](#) [monitoring](#) [remote robot](#) [remote telemanipulation system](#) [teleoperation architectures](#) [telerobotics](#) [user-friendly operation](#) [virtual reality](#)

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